

REMARKS

This amendment is in response to the Office Action, dated on November 28, 2005. Reexamination and reconsideration are respectfully requested. Claims 1, 3 and 14 are amended, claims 2 and 16-20 are canceled without disclaiming the subject matter, and claims 21-24 are newly added. No new matter has been introduced in the new claims.

Amendment to the Drawings

In FIG. 1, reference numerals 10a and 12a are redirected.

In FIG. 3, reference numeral 31 is added.

In FIG. 5, reference numeral 24a is added.

Status of Claims

Claims 1, 4, 10, 12, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Itoh et al. (U.S. Patent 6,103,142).

Claims 2, 3, 5, 13, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al. as applied to claims 1, 12, and 14 above, and further in view of Sun et al. (U.S. Patent Publication 2002/0160111).

Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al. and Sun et al. as applied to claim 5 above, and further in view of Kiyomiya et al. (U.S. Patent 5,939,823).

Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al., Sun et al., and Kiyomiya et al. as applied to claims 6 and 8 above, and further in view of Sung et al. (U.S. Patent 6,713,953).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al. as applied to claim 1 above, and further in view of Tanaka (U.S. Patent 6,175,344).

Claims 21-24 are newly added.

Regarding Claim 1

Claim 1 is amended to include the feature of the original claim 2. Original claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al. as applied to claim 1 above, and further in view of Sun et al. (U.S. Patent Publication 2002/0160111). Applicants traverse the rejection of the original claim 2 as follows.

In the rejection of the original claim 2, the Examiner wrote:

“Itoh et al. discloses the flat panel display device. Itoh et al. do not disclose the use of carbon nanotubes. Sun et al. do disclose the use of carbon nanotubes in place of diamond like carbon (paragraph 5).”

Applicants submit that Sun et al. ‘111 discloses “[a]nother alternatives being explored is the *cathode* using carbon-based thin films, such as diamond, diamond-like carbon and carbon nanotubes films as the *emitters*.”¹ Original claim 2 states that the flat panel display device comprises an electron emission assembly and an illumination assembly, and the illumination assembly comprises the conductive layers being made of carbon nanotubes. Sun et al. ‘111, however, discloses the use of carbon nanotubes in the emission assembly. *Cathodes* and *emitters* of Sun et al. ‘111 are constructed in the emission assembly, while the conductive layer set forth in claim 2 is included in the

¹ Sun et al. ‘111, paragraph 5.

illumination assembly. The emission assembly is a structure that is structurally and functionally different from illumination assembly. Sun et al. '111 never discloses the use of carbon nanotubes in the conductive layer of the illumination assembly.

Therefore, the combined prior art references do not teach or suggest all the claim limitations. Withdrawal of the rejection of the original claim 2 is respectfully requested. Applicants believe the amended claim 1 is distinctive over the cited references. Allowance of the amended claim 1 is respectfully requested.

Rejection of Claim 7 under 35 U.S.C. 103(a)

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al., Sun et al., and Kiyomiya et al. as applied to claim 6 above, and further in view of Sung et al. (U.S. Patent 6,713,953). Applicants traverse the Examiner's rejection as follows.

In support of the rejection, the Examiner wrote:

"Itoh et al. disclose the flat panel display device.

Itoh et al. do not disclose a black matrix.

Kiyomiya et al. do disclose a black matrix that, in combination with the device of Itoh et al. would necessarily contact the plurality of conductive layers.

Sung et al. do disclose a black matrix being electrically conductive.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the black matrix of Kiyomiya et al. and Sung et al. in order to improve contrast."

The Examiner asserted, in support of the rejection of claim 6, that Kiyomiya et al. '823 discloses a plurality of black matrix layers not contacting the plurality of anode electrodes (8, 1B, 1R, 1G, of fig 2). The Examiner also asserted in this rejection that Kiyomiya et al. '823 discloses a black matrix that, in combination with the device of Itoh et al. would necessarily contact the plurality of conductive layers. Kiyomiya et al. '823, however, never discloses the conductive layers formed on the phosphor layers. Then, how could the black matrix layer, which is not contacting the anode layer, contact the conductive layer, which is formed on the phosphor layer that is formed on the anode layer? To answer this question, there should be some structural description related to the arrangement of the conductive layer formed on the phosphor layer, and the arrangement of the black matrix layer and the anode electrode. The Examiner simply asserted "a black matrix . . . *would necessarily contact* the plurality of conductive layers." The Examiner's reasoning, however, doesn't provide any support for the motivation to combine the cited references. There are three elements (the black matrix layer, the conductive layer, and the anode electrode), but only two structural relationships among the elements are described in the cited references (a first relationship between the conductive layer and the anode electrode, and a second relationship between the black matrix layer and the anode electrode). The Examiner's assertion, saying the black matrix *would necessarily contact* the plurality of conductive layers, is an impermissible attempt to drive a third relationship (relationship between the conductive layer and the black matrix layer) from the first and second relationships, however, without any factual support or suggestion from the combined references. The fact that the conductive layer is formed on the phosphor layer, therefore, on the anode layer, doesn't indicate that the conductive layer necessarily or naturally contacts the black matrix layer. The third structural relationship between the conductive layer and the black matrix layer is independent from

and cannot be driven from the first and the second relationship. The motivation or suggestion to provide the structural relationship between the conductive layer and the black matrix layer is not found the cited references.

In re Rouffet, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper.).

Therefore, Applicants submit that there is no suggestion or motivation in the cited combined references. Moreover, the impermissible effort of the Examiner to drive a third relationship between the conductive layer and the black matrix layer is overwhelming evidence of non-obviousness. Withdrawal of the rejection is respectfully requested.

Rejection of Claim 8 under 35 U.S.C. 103(a)

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al. and Sun et al. as applied to claim 5 above, and further in view of Kiyomiya et al. (U.S. Patent 5,939,823). Applicants respectfully traverse the Examiner's rejection as follows.

In support of the rejection, the Examiner wrote:

“Itoh et al. disclose the flat panel display device.

Itoh et al. do not disclose a black matrix.

Kiyomiya et al. do disclose a plurality of black matrix layers being formed between a plurality of anode electrodes, the plurality of black matrix layers contacting the plurality of anode electrodes (8, 1B, 1R, 1G, of fig 24).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the black matrix of Kiyomiya et al. into the device of Itoh et al. in order to improve contrast.”

Applicants submit that the Examiner’s rejection, however, is based on a drawing that is not to scale and is silent as to dimensions. Specifically a very thorough reading of Kiyomiya et al. ‘823, it is not found that the insulating black layer contacts the anode electrode (1R, 1G, or 1B). Regarding the insulating layer, Kiyomiya et al. ‘823 only discloses that “the insulating layer 8 and the electrode 9 are layered in stripe form between the electrodes 1R, 1G, 1B, also.”² There is no teaching in Kiyomiya et al. ‘823 suggesting that the black layers contact the anode electrodes.

[T]he picture must show all the claimed structural features and how they are put together. *Jockmus v. Leviton*, 28 F.2d 812 (2d Cir. 1928). When the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. See *Hockerson-Halberstadt, Inc. v. Avia Group Int’l*, 222 F.3d 951, 956, 55 USPQ2d 1487, 1491 (Fed. Cir. 2000).³

Therefore, Applicants submit that the Examiner failed to show the combined references teach or suggest all the claim limitations. Withdrawal of the rejection is respectfully requested.

Rejection of Claim 9 under 35 U.S.C. 103(a)

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al., Sun et al., and Kiyomiya et al. as applied to claim 8 above, and further in view of Sung et al. (U.S. Patent

² Kiyomiya et al. ‘823, col. 14, lines 46-48.

³ MPEP § 2125.

6,713,953). Applicants respectfully traverse the Examiner's rejection as follows.

In support of the rejection, the Examiner wrote:

"Itoh et al. disclose the flat panel display device.

Itoh et al. do not disclose a black matrix.

Kiyomiya et al. do disclose a black matrix that, in combination with the device of Itoh et al. would necessarily contact the plurality of conductive layers.

Sung et al. do disclose a black matrix being electrically conductive.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the black matrix of Kiyomiya et al. and Sung et al. in order to improve contrast."

Applicants submit that there is no motivation in the references to combine the teachings of the references, because the proposed modification, as the Examiner asserted, would render the prior art unsatisfactory for its intended purpose.

Kiyomiya et al. '823 discloses a method to selectively coat a fluorescent substance onto only the electrode 1R, 1G, or 1B with better fine control of the field.⁴ FIG. 26 of Kiyomiya et al. '823 shows an example giving the electrodes 1R *a negative potential* and the electrodes 1G, 1B, and 9 *a zero or positive potential* to coat the fluorescent substance R only onto 1R. The fluorescent substance R can be selectively electrodeposited on the electrodes 1R only.⁵ FIG. 27 and FIG. 28 show another examples to coat 1G and 1B, respectively, where negative potential is applied to only

⁴ Kiyomiya et al. '823, col. 14, lines 56-58.

⁵ Kiyomiya et al. '823, col. 14 line 64 - col. 15, line 1.

1G or 1B. According to teachings of Kiyomiya et al. '823, different type of potential should be applied to each of 1R, 1G, 1B, and 9 (conductive layer) to make it possible to selectively coat the fluorescent substance on each electrode in the electrodeposition process.

The Examiner asserted that Sung et al. '953 discloses a black matrix being electrically conductive, and it would have been obvious to incorporate the black matrix of Kiyomiya et al. '823 and Sung et al. '953. If we combine the teachings of Kiyomiya et al. '823 and Sung et al. '953 as the Examiner asserted, in the other words, if we make the black matrix layer 8 in FIG. 24 of Kiyomiya et al. '823 being conductive, all electrodes (1R, 1G, 1B, and 9) will be electrically connected. If all electrodes are connected, it is obvious that the intended purpose of Kiyomiya et al. '823, selectively electrodepositing fluorescent substance on the electrode, will not be achieved, because the electrodeposition process requires different type of potential at each electrode for the coating of the fluorescent substance. From this point of view, it is clear that the purpose of the black layer 8 in FIG. 24 of Kiyomiya et al. '823 is to electrically disconnect the conductive layer 9 from the other electrodes, 1R, 1G, and 1B. The black matrix of Kiyomiya et al. '823 should not be a conductive layer.

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).⁶

Therefore, Applicants submit that there is no suggestion or modification to combine the prior art references. Withdrawal of the rejection is respectfully requested.

⁶ MPEP § 2143.01

Rejection of Claims 4, 10, and 12 under 35 U.S.C. 102(b)

Claims 4, 10, 12, and 14 depend from the claim 1. Claim 1 is amended to be distinctive over the prior art reference. Withdrawal of the rejection is respectfully requested.

Regarding Claim 14

Claim 14 is amended to include features disclosed in the original specification but not claimed. Applicant believes the features claimed in amended claim 14 are not disclosed in the cited references. Entry of the amended claim 14 is respectfully requested.

Rejection of Claims 3, 5, 6, 11, 13 and 15 under 35 U.S.C. 103(a)

Claims depend 3, 5, 6, 11, 13 and 15 from the claim 1. Claim 1 is amended to be distinctive over the prior art reference. Withdrawal of the rejection is respectfully requested.

Applicant newly adds an independent claim 21, and dependent claims 22-24 by this amendment. Claim 21 includes features of the original claim 1 and features of a black matrix that is recited in the original claims. Claim 22 includes features of the original claim 2. Claims 23-24 further defines the features of the present invention.

In view of the above, all claims are deemed allowable and this application is believed to be in condition to be passed to issue. If there is any question, the Examiner is asked to contact the Applicant's attorney.

No fee is incurred by this amendment.

Respectfully submitted,



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